

Appl. No. 09/936,925

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A particulate material having a density of at least 2.5 g/ml, ~~comprised of where the particles of the particulate material have~~ having an average diameter of 5-75 μ m, ~~and wherein the said particles of the particulate material are essentially constructed of a polymeric base matrix and a non-porous core material, said core material having a density of at least 3.0 g/ml, and said polymeric base matrix including~~ comprising either chargeable pendant groups which are positively charged at pH 4.0 or which are affinity ligands for a bio-molecule.
2. (Currently Amended) ~~A~~ The material according to claim 1, wherein the average diameter of the particles is in the range of 10-60 μ m.
3. (Currently Amended) ~~A~~ The material according to claim 1, wherein at least 95% of the particles have a diameter in the range of 5-80 μ m.
4. (Currently Amended) ~~a~~ The material according to claim 1, wherein the density of the particles is at least 3.0 g/ml.
5. (Currently Amended) ~~A~~ The material according to claim 1, wherein the pendant groups comprise chargeable moieties selected from polyethyleneimine, modified polyethyleneimine, poly(ethyleneimine/oxyethylene), quaternary aminoethyl(QAE) and diethylaminoethyl, (DEAE).

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6. (Currently Amended) ~~A~~ The material according to claim 5, wherein the pendant groups are polyethyleneimine chains having an weight average molecular weight of at least 10,000 Daltons.
7. (Currently Amended) ~~A~~ The material according to claim 5, wherein the pendant groups form a tentacular structure on the surface of the particle.
8. (Currently Amended) ~~A~~ The material according to claim 1, wherein the core material has a density in the range of 6.0-12.0 g/ml.
9. (Currently Amended) ~~A~~ The material according to claim 1, wherein the core material of at least 95% of the particles is a steel bead having a diameter in the range of 2-40 μm .
10. (Currently Amended) ~~A~~ The material according to claim 1, wherein at least 95% of the particles comprises one non-porous core material bead having a diameter which is a least 0.70 of the diameter of the particle.
11. (Currently Amended) ~~A~~ The material according to claim 1, wherein the core material ~~is constituted by~~ comprises more than one bead.

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12. (Currently Amended) ~~A~~The material according to claim 1, wherein the core material constitutes 10-99% of the volume of the particles, and the polymer base matrix constitutes 1-90% of the volume of the particle.
13. (Currently Amended) ~~A~~The material according to claim 1, wherein the polymeric base matrix is selected from polysaccharides.
14. (Currently Amended) ~~A~~The material according to claim 1, wherein at least 95% of the particles are substantially spherical.
15. (Currently Amended) A particulate material having a density of in the range of 3.2-5.0 g/ml, wherein the particles of the particulate material have an average diameter of 15-45 μm , and the particles of the particulate material are essentially constructed of a polysaccharide base matrix and a core material, said core material having a density in the range of 6.0-12.0 g/m^3 , said polysaccharide base matrix including pendant groups selected from polyethyleneimine chains, modified polyethyleneimine chains and poly(ethyleneimine/oxyethylene) chains, said pendant groups forming a tentacular structure on the surface of the particle.
16. (Previously Presented) A method for the isolation or purification of a bio-macromolecule, wherein said bio-macromolecule is adsorbed to a particulate material as defined in claim 1.

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17. (Currently Amended) ~~A~~ The method according to claim 16, wherein the particulate material is present in fluidized form in a fluid bed column.

18. (Currently Amended) A method for the purification of bio-macromolecule, the method comprising the steps of

- (a) contacting a feedstock comprising one or more bio-macromolecules with a fluidized bed of a particulate material as defined in claim 1;
- (b) ~~optionally washing the particulate material in order to separate impurities from the particulate material and the bio-macromolecule(s); and~~
- (e)(b) eluting the bio-macromolecule(s) from the particulate material.

19. (Currently Amended) ~~A~~ The method according to claim 18, wherein the fluidized bed of the particulate material is washed with an equilibration buffer prior to contacting with the feedstock.

20. (Currently Amended) ~~A~~ The method according to claim 18, wherein the concentration of the bio-macromolecule in the feedstock is in the range of 0.1-3,000 $\mu\text{m/ml}$.

21. (Currently Amended) ~~A~~ The method according to claim 20, wherein the feedstock comprising the bio-molecules(s) furthermore comprises NaCl in a concentration of 0.01-2.0M.

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22. (Currently Amended) ~~A-The~~ method according to claim 20, wherein the feedstock comprising the bio-macromolecule(s) furthermore comprises a buffer whereby the pH is in the range of 4.0-8.0.

23. (Currently Amended) ~~A-The~~ method according to claim 18, wherein the ratio between the bio-macromolecule and the particulate material (~~adsorbent~~) is in the range of 0.1-7.0 mg bio-macromolecule/ml ~~adsorbent~~particulate material.

24. (Currently Amended) ~~A-The~~ method according to claim 18, wherein the bio-macromolecule has a molecular weight of at least 20,000 Daltons.

25. (Currently Amended) ~~A-The~~ method according to claim 18, wherein the particulate material ~~having adsorbed thereto the bio-macromolecule~~ is washed (~~step b~~) with an aqueous equilibration buffer including NaCl.

26. (Currently Amended) ~~A-The~~ method according to claim 18, wherein ~~the particulate material having adsorbed thereto the bio-macromolecule~~ is eluted with a NaCl gradient and/or NaOH buffer is used to elute the bio-molecule(s) from the particulate matter in step (b).

27. (Currently Amended) ~~A-The~~ method according to claim 18, wherein the fluidized bed is a stabilized expanded bed without significant back-mixing.

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28. (Currently Amended) ~~A~~ The method according to claim 18, wherein the particulate material is comprised of particles and is defined in claim 15 has a density of in the range of 3.2-5.0 g/ml, and wherein the particles of the particulate material have an average diameter of 15-45 μ m, and are essentially constructed of a polysaccharide base matrix and a core material, said core material having a density in the range of 6.0-12.0 g/m³, said polysaccharide base matrix including pendant groups selected from polyethyleneimine chains, modified polyethyleneimine chains and poly(ethyleneimine/oxyethylene) chains, said pendant groups forming a tentacular structure on the surface of the particle.

29. (Currently Amended) ~~A~~ The method according to claim 18, wherein the bio-macromolecule is an nucleic acid.

30. (Currently Amended) ~~A~~ The method according to claim 29, wherein the nucleic acid is plasmid DNA.

31. (Cancelled)

32. (New) The method according to claim 18, wherein the particulate material is washed to separate impurities from the particulate material and the bio-macromolecule(s) after the particulate material is contacted with the feedstock in step (a).

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33. (New) The material according to claim 1, wherein the polymeric base matrix comprises pendent groups which are positively charged at pH 4.0 or which are affinity ligands for a bio-molecule.